ICF-M200

SERVICE MANUAL

AEP Model
UK Model

SPECIFICATIONS

Frequency range	FM: 87.5 – 108 MHz (50 kHz step) AM: 531 – 1,602 kHz (9 kHz step)
Antennas	FM: Telescopic antenna AM: Built-in ferrite bar antenna
Speaker	Approx. 7.7 cm ($3\frac{1}{8}$ inches) dia.
Power output	280 mW (at 10% harmonic distortion)
Output	Earphone jack (minijack)
Power requirements	4.5 V DC Three R6 (size AA) batteries DC IN 4.5 V jack accepts: Sony AC-D3M AC power adaptor (optional) Sony DCC-127A car battery cord (optional) for use with 12 V car battery
Battery life	Approx. 19 hours of listening for 4 hours a day at a normal volume using Sony batteries SUM-3 (NS)
Dimentions	Approx. 178 × 100 × 32 mm (w/h/d) ($7\frac{1}{8} \times 4 \times 1\frac{5}{16}$ inches) not incl. projecting parts and controls
Weight	Approx. 465 g (16.4 oz) incl. batteries
Supllied accessory	Earphone (1)

Design and specifications subject to change without notice.

FEATURES

- A quartz-controlled PLL (Phase Locked Loop) synthesizer system using a microcomputer for easy pinpoint tuning.
- Up to 5 stations in each band can be preset.
- The tuned frequency is digitally displayed to make searching of the desired station easier.

MICROFILM

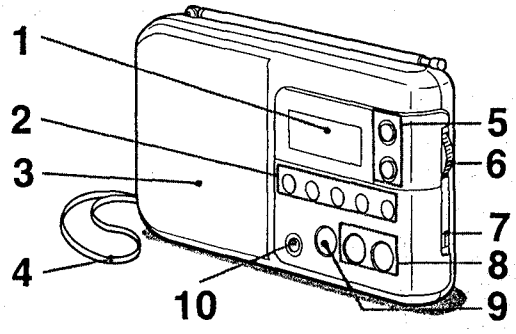
FM/AM 2 BAND PLL SYNTHESIZED RECEIVER

SONY®

SECTION 1
GENERAL

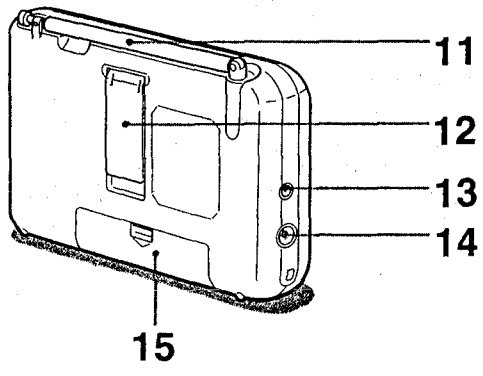
1-1. LOCATION AND FUNCTION OF CONTROLS

Front panel



1 Display window
2 PRESET TUNING buttons
3 Speaker
4 Hand strap
5 SCAN buttons
6 VOLUME control
7 KEY PROTECT button
8 POWER ON (FM and AM) buttons
9 OFF button
10 ENTER button

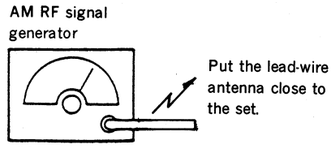
Rear panel



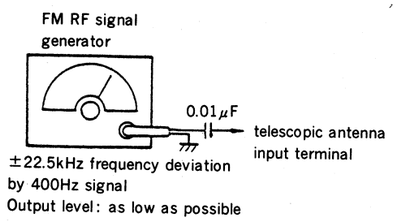
11 Telescopic antenna
12 Stand
13 Ⓟ Earphone jack
When the earphone is plugged in, the sound from the speaker does not come out.
14 DC IN 4.5 V (external power input) jack
15 Battery compartment

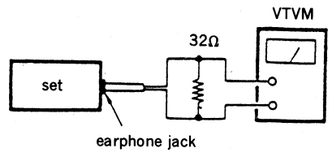
SECTION2
ELECTRICAL ADJUSTMENTS

AM Section


AM RF signal generator
Put the lead-wire antenna close to the set.
30% amplitude modulation by 400Hz signal
Output level: as low as possible

FM Section


FM RF signal generator
0.01μF
telescopic antenna input terminal
±22.5kHz frequency deviation by 400Hz signal
Output level: as low as possible



- Repeat the procedures in each adjustment several times, and the tracking adjustments should be finally the trimmer capacitors.

AM IF ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
T1	450kHz

AM FREQUENCY COVERAGE ADJUSTMENT		
Adjustment Part	Frequency Display	Reading on Digital Voltmeter ①.
L4	531kHz	1.2±0.1V

Note : Not use the AM rf signal generator in this adjustment.

AM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L1	621kHz
CT2	1,395kHz

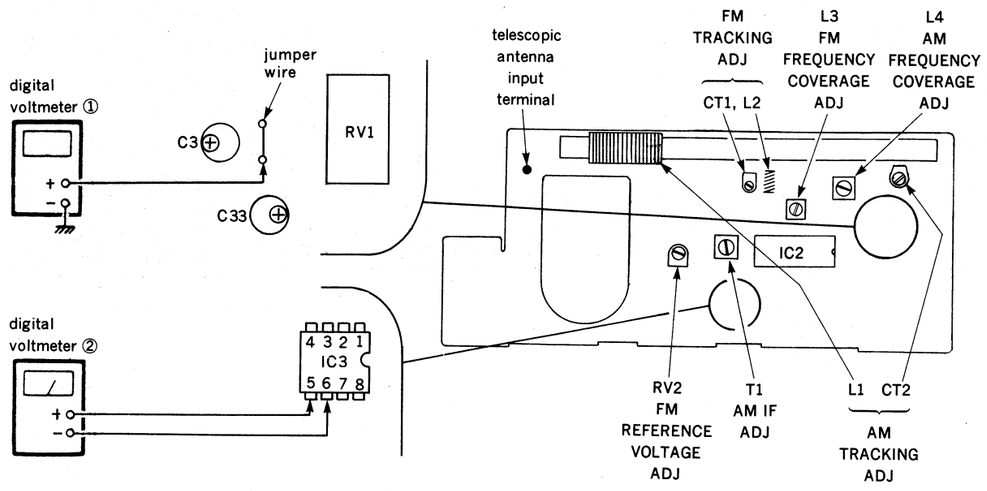
FM FREQUENCY COVERAGE ADJUSTMENT		
Adjustment Part	Frequency Display	Reading on Digital Voltmeter ①.
L3	108MHz	10.3±0.1V

Note : Not use the FM signal generator.

FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L2	87.5MHz
CT1	108MHz

FM REFERENCE VOLTAGE ADJUSTMENT		
FM rf signal generator	Modulation	no modulation
	Carrier frequency	87.53MHz
	Output level	1mV (60dB)
Adjustment Part	Frequency Display	Reading on Digital Voltmeter ②.
RV2	87.5MHz	0±2mV

Adjustment Location : main board



SECTION 3
DIAGRAMS

3-1. EXPLANATION OF IC 1 (μPD1715G-583-24)

Pin No.	Symbol	Naming	Description
1 | 10 48 | 53	LCD10 | LCD1 LCD16 | LCD11	LCD SEGMENT SIGNALS	• Segment signal output pins to
11 | 13	COM3 | COM1	LCD COMMON SIGNAL	• Common signal output pin to L
14 15 16 17	VSS3 CAP2 CAP1 VSS2	CAPACITOR CONNECTION PIN FOR DABULAR	• Capacitor connection pins for c circuit to make LCD drive volt
18	MUTE	MUTE PIN	• Mute signal output pin to m encountered in the unlocked c the PLL and key-scan noises
19	BUZZER	BUZZER OUTPUT PIN	• Output pin of standby alarm so out beep sound, and scan beep
20, 46	VDD	POWER SUPPLY INPUT PIN	• Power supply input pin for dev • The power-on reset circuit of d to operate at the instance this p a voltage of 0 (zero) to 2.0 VD program starts from the locatio
21	M	CONTROL SIGNAL INPUT PIN FOR DIVIDER	• Determines the dividing ratio o division prescalar. (Only when pin is used in VCO input) • A 1/4 dividing ratio is made terminal is held at "High" a divider is made when held at "L
22	VCOH	FM LOCAL OSC SIGNAL INPUT PIN	• This pin inputs VCO signal whe FM bands
23	VCOL	AM LOCAL OSC SIGNAL INPUT PIN	• This pin inputs VCO signal whe AM bands
24	VSS1	GROUND PIN	• Ground pin of device
25, 26	EO	ERROR OUTPUT PIN	• Error output pin of the PLL
27	CE	VOLTAGE DECREASE DETECTION PIN	• Voltage decrease detection pin
28 29	Xi Xo	CRYSTAL OSCILLATOR CONNECTION PIN	• An external quartz-crystal osci nects to these pins to obtain 75k generator
30	BUZZER/RADIO	BUZZER/RADIO SELECT SWITCH PIN	• Not used
31	INITIAL DIODE, KEY SOURCE	INITIAL DIODE, KEY SOURCE	• Used as key source of initial di (VDD="Low"→"High")
32 33	SD2 SD1	SD SIGNAL INPUT PIN	• Input pin of SD (station detect from the tuner
34 35	BAND2 BAND1	BAND DATA OUTPUT PIN	• These pins output band informa tuner BAND 1 "High" : AM "Low" : FM BAND 2 : Not used

SECTION 3
DIAGRAMS

TION OF IC 1 (μPD1715G-583-24)

Symbol	Naming	Description	Active
LCD10 | LCD1 LCD16 | LCD11	LCD SEGMENT SIGNALS	• Segment signal output pins to LCD	—
COM3 | COM1	LCD COMMON SIGNAL	• Common signal output pin to LCD	—
VSS3 CAP2 CAP1 VSS2	CAPACITOR CONNECTION PIN FOR DABULAR	• Capacitor connection pins for dabular circuit to make LCD drive voltage	—
MUTE	MUTE PIN	• Mute signal output pin to mute noises encountered in the unlocked condition of the PLL and key-scan noises	Low
BUZZER	BUZZER OUTPUT PIN	• Output pin of standby alarm sound, range-out beep sound, and scan beep sound	—
VDD	POWER SUPPLY INPUT PIN	• Power supply input pin for device • The power-on reset circuit of device starts to operate at the instance this pin receives a voltage of 0 (zero) to 2.0 VDC, and the program starts from the location 0 (zero)	—
M	CONTROL SIGNAL INPUT PIN FOR DIVIDER	• Determines the dividing ratio of the fixed-division prescalar. (Only when the VCOH pin is used in VCO input) • A 1/4 dividing ratio is made when this terminal is held at "High" and a 1/2 divider is made when held at "Low"	—
VCOH	FM LOCAL OSC SIGNAL INPUT PIN	• This pin inputs VCO signal when receiving FM bands	—
VCOL	AM LOCAL OSC SIGNAL INPUT PIN	• This pin inputs VCO signal when receiving AM bands	—
VSS1	GROUND PIN	• Ground pin of device	—
EO	ERROR OUTPUT PIN	• Error output pin of the PLL	—
CE	VOLTAGE DECREASE DETECTION PIN	• Voltage decrease detection pin of the set	—
Xi Xo	CRYSTAL OSCILLATOR CONNECTION PIN	• An external quartz-crystal oscillator connects to these pins to obtain 75kHz signal generator	—
UZZER/RADIO	BUZZER/RADIO SELECT SWITCH PIN	• Not used	—
NITIAL DIODE, KEY SOURCE	INITIAL DIODE, KEY SOURCE	• Used as key source of initial diode (VDD="Low"→"High")	High
SD2 SD1	SD SIGNAL INPUT PIN	• Input pin of SD (station detection) signal from the tuner	Low
BAND2 BAND1	BAND DATA OUTPUT PIN	• These pins output band information to the tuner BAND 1 "High" : AM "Low" : FM BAND 2 : Not used	High

Pin No.	Symbol	Naming	Description	Active
36	POWER	POWER OUTPUT PIN	• Power output pin	High
37 38 39 40 42	PB0 PC3 PC2 PC1 PC0	MOMENTARY KEY SOURCE OUTPUT PIN	• Key source output pin of momentary key	High
43 44 45 47	K3 K2 K1 K0	KEY RETURN SIGNAL INPUT PIN	• Key return signal input pin of momentary key and diode switch	High
41 54	NC	NO CONNECTION PIN	• This is a free terminal and is not connected to the internal circuits, and this terminal can be used as a junction land.	

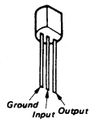
• Key Matrix

Matrix table of monentary key and diode sw.

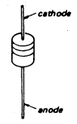
Input / Output	㊸K3	㊹K2	㊺K1	㊼K0	
㊲PB0	———	———	UP	DOWN	momentary key
㊳PC3	ENTER	3	2	1	
㊴PC2	———	———	5	4	
㊵PC1	KEY PROTECT	OFF	———	———	
㊷PC0	———	AM	FM	———	
㉛PA2	A3	A2	A1	A0	diode SW

3-2. SEMICONDUCTOR LEAD LAYOUTS

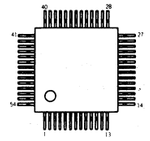
S-81230AG



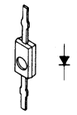
RD5.6ES-B2
RD12ES-B2
1SS119



μPD1715G-583-24



1T32-2

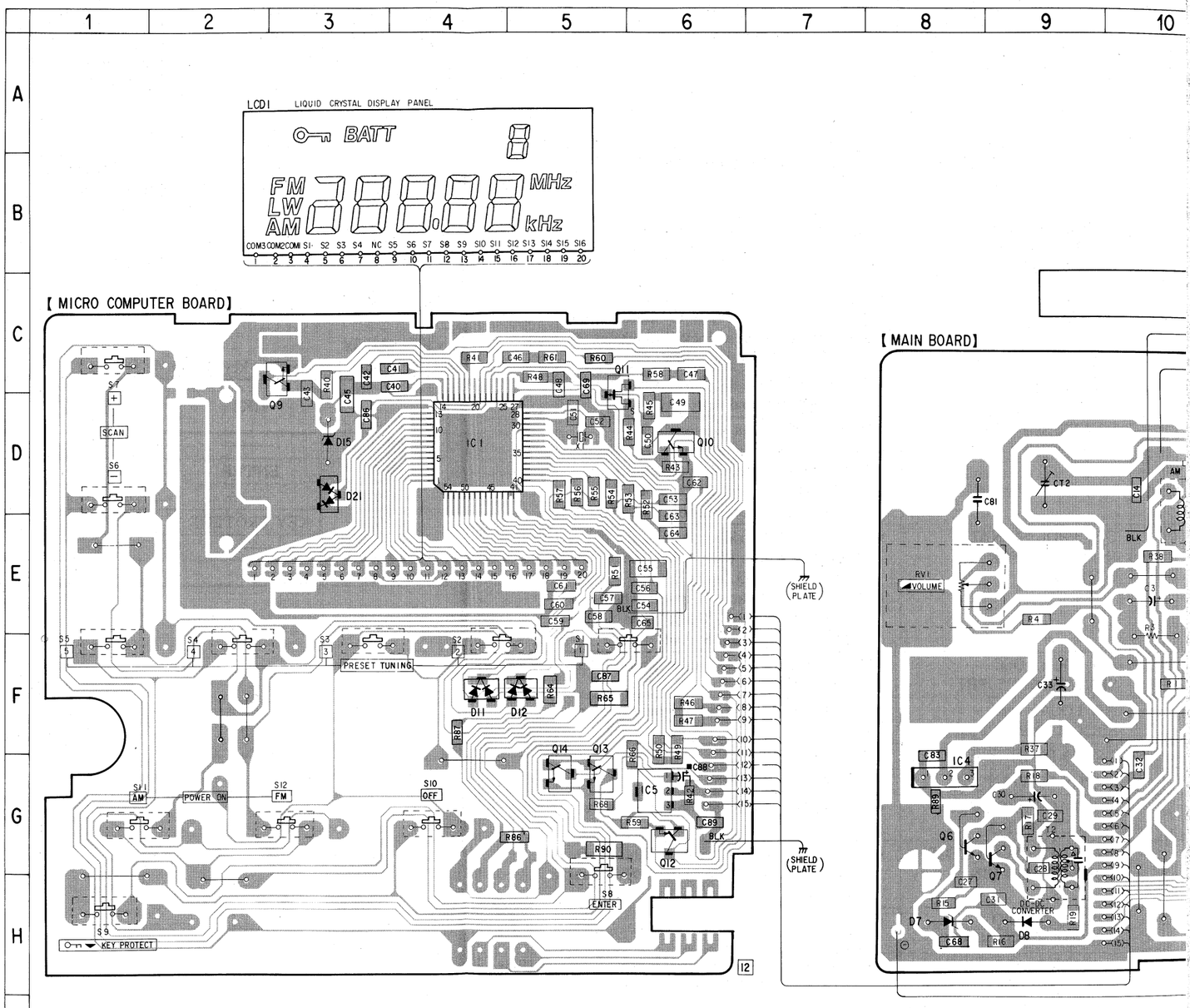


2SC1809SN
2SC2785-HFE

● **Semiconductor Location**

Ref. No.	Location	Ref. No.	Location
D1	D11	Q11	C-5
D2	E-12	Q12	G-6
D3	E-12	Q13	G-5
D5	E-14	Q14	G-5
D6	E-14	Q16	G-14
D7	H-8		
D8	H-9		
D9	G-18		
D10	G-18		
D11	F-4		
D12	F-5		
D15	D-3		
D21	D-3		
IC1	D-4		
IC2	F-11		
IC3	G-13		
IC4	G-8		
IC5	G-6		
Q1	E-11		
Q2	G-12		
Q3	G-11		
Q4	G-12		
Q5	G-12		
Q6	G-8		
Q7	G-9		
Q8	H-11		
Q9	C-3		
Q10	D-6		

3-3. PRINTED WIRING BOARDS

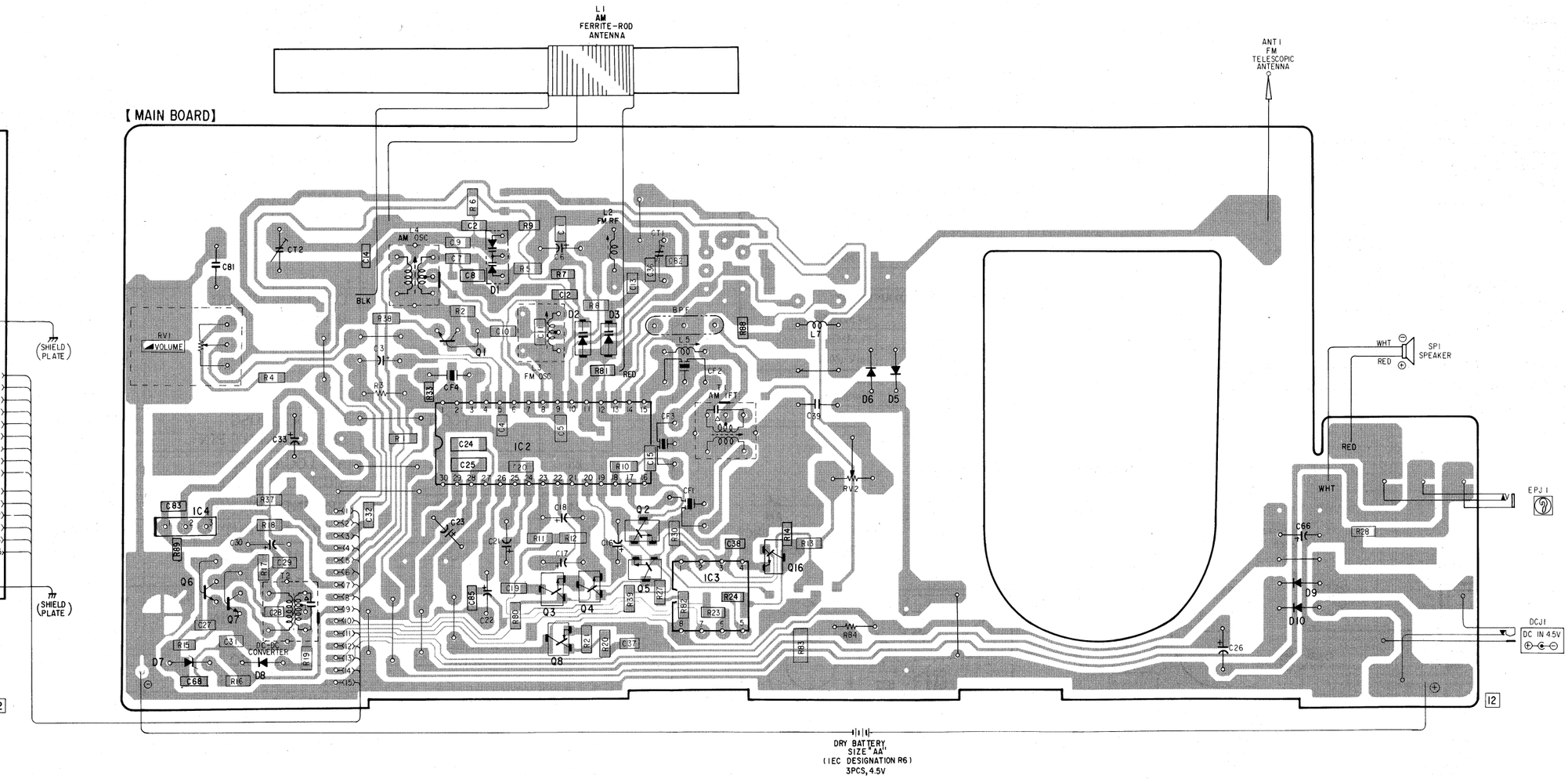


Note:

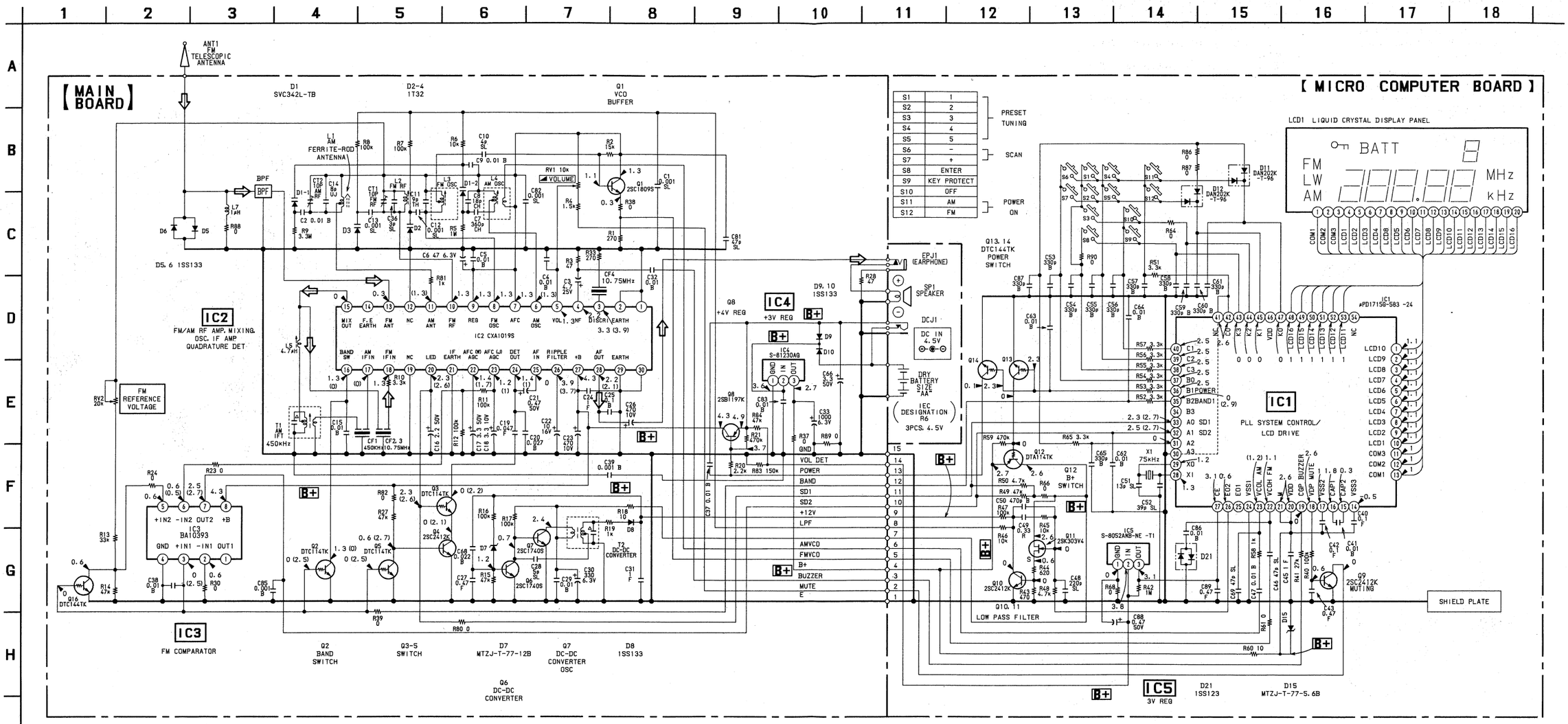
- ○—— : parts extracted from the component side.
- —— : parts extracted from the conductor side.
- ⊡→ indicates side identified with part number.
- ■ : parts mounted on the conductor side.

ICF-M200	ICF-M200

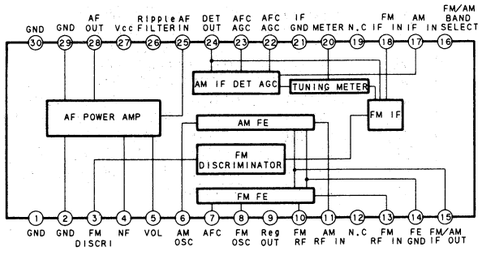
7	8	9	10	11	12	13	14	15	16	17	18	19	20



3-4. SCHEMATIC DIAGRAMS



• IC Block Diagram
IC2 CXA1019S



Note:

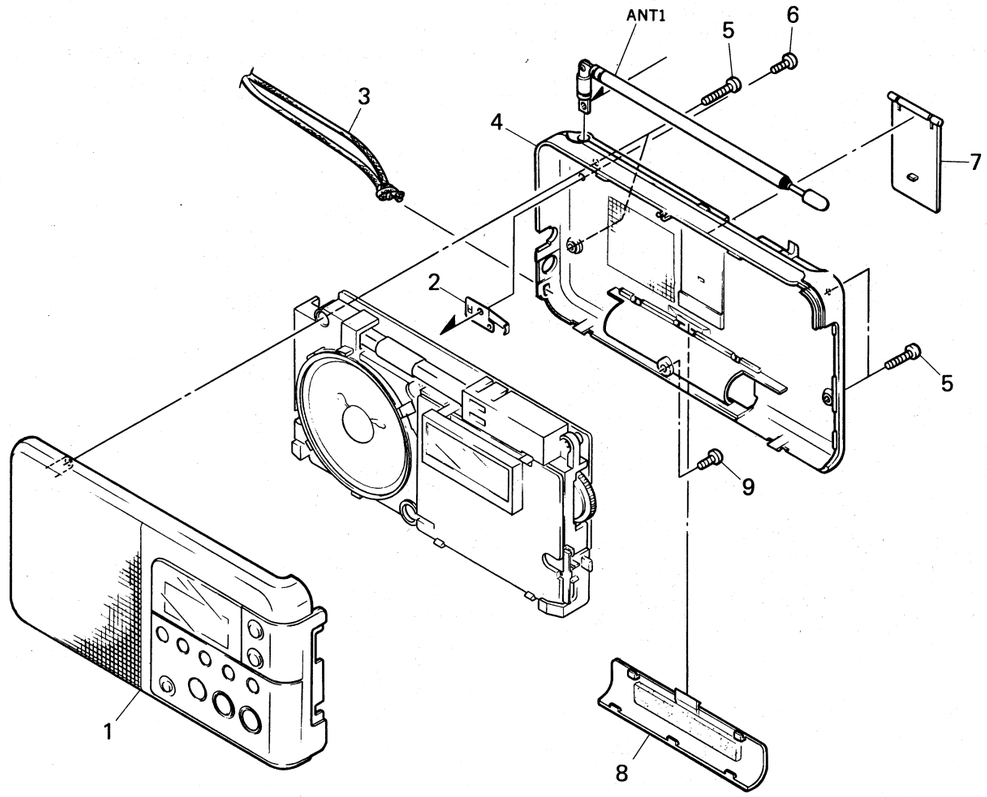
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼W or less unless otherwise specified.
- △ : internal component.
- ▭ : adjustment for repair.
- Power voltage is dc 4.5 V and fed with regulated dc power supply from battery terminal.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark: FM
  ( ): AM
- Voltages are taken with a VOM (Input Impedance 10MΩ).
- Signal path.
  ⇨ : FM

SECTION 4
EXPLODED VIEWS

NOTE:

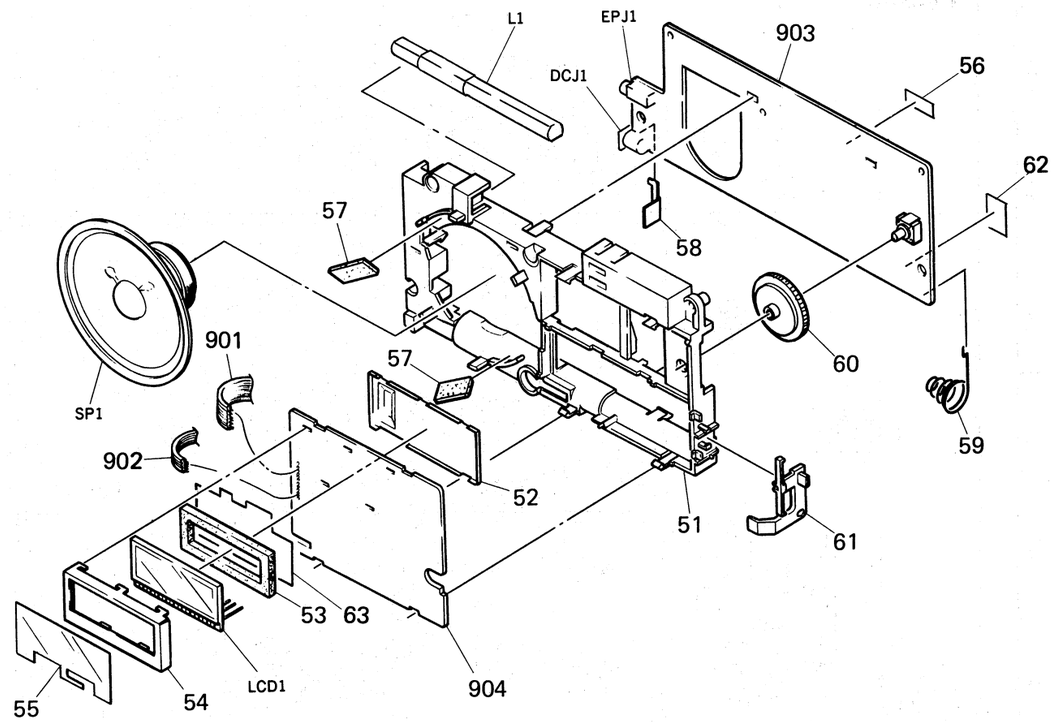
- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts
  Example:
  (RED) . . . KNOB, BALANCE (WHITE)
  ↑ ↑
  Cabinet's Color Parts Color

4-1. CABINET SECTION



Ref.No	Part No.	Description	Remark
1	A-3641-534-A	CABINET (FRONT) ASSY	
2	*3-902-252-01	PLATE (ANTENNA), CONTACT	
3	3-902-226-01	STRAP, HAND	
4	3-902-266-21	LID, REAR, CABINET	
5	7-685-651-79	SCREW +P 3X20 TYPE2 NON-SLIT	
6	7-682-547-09	SCREW +P 3X6	
7	3-902-251-01	STAND	
8	3-902-290-01	LID, BATTERY CASE	
9	7-685-646-79	SCREW +P 3X8 TYPE2 NON-SLIT	
ANT1	1-501-362-11	ANTENNA, TELESCOPIC	

4-2. CHASSIS SECTION



Ref.No	Part No.	Description	Remark
51	*3-902-264-01	CHASSIS	
52	*3-902-263-11	PLATE (A), SHIELD	
53	*3-902-259-01	SPACER (LCD)	
54	*3-902-255-01	HOLDER (LCD)	
55	3-902-254-01	SHEET (LCD)	
56	3-831-441-XX	SPACER	
57	*3-902-259-01	SPACER (LCD)	
58	3-902-258-01	TERMINAL BOARD, BATTERY	
59	3-902-257-01	SPRING, TORSION	
60	3-902-250-01	KNOB (VOLUME)	
61	3-902-253-01	BUTTON (KP)	
62	*3-902-291-01	SHEET (B), COPPER LEAF	
63	*3-902-287-01	SHEET, COPPER LEAF	
901	*1-574-915-11	CORD, CONNECTION	
902	*1-574-916-11	CORD, CONNECTION	
903	*A-3670-043-A	PC BOARD ASSY, MAIN	
904	*A-3675-014-A	PC BOARD ASSY, MICRO COMPUTER	
DCJ1	1-507-954-11	JACK, EXTERNAL POWER (DC IN 4.5V)	
EPJ1	1-563-330-11	JACK (EARPHONE)	
L1	1-402-452-11	ANTENNA, FERRITE-ROD (MW)	
LCD1	1-808-768-11	DISPLAY PANEL, LIQUID CRYSTAL	
SP1	1-544-171-11	SPEAKER	

SECTION 5
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

Ref.No	Part No.	Description			
901	*1-574-915-11	CORD, CONNECTION			
902	*1-574-916-11	CORD, CONNECTION			
903	*A-3670-043-A	PC BOARD ASSY, MAIN			
904	*A-3675-014-A	PC BOARD ASSY, MICRO COMPUTER			
ANT1	1-501-362-11	ANTENNA, TELESCOPIC			
BPF	1-235-171-00	FILTER, BAND PASS			
		CAPACITOR			
C1	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C2	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C3	1-126-094-11	ELECT	4.7MF	20%	25V
C4	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C5	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C6	1-126-154-11	ELECT	47MF	20%	6.3V
C7	1-163-130-00	CERAMIC CHIP	360PF	5%	50V
C8	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C9	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C10	1-163-087-00	CERAMIC CHIP	4PF	0.25PF	50V
C11	1-163-465-91	CERAMIC CHIP	9PF	0.25PF	50V
C12	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C13	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C14	1-163-091-00	CERAMIC CHIP	8PF	0.25PF	50V
C15	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C16	1-124-257-00	ELECT	2.2MF	20%	50V
C17	1-126-162-11	ELECT	3.3MF	20%	50V
C18	1-131-368-00	TANTALUM	3.3MF	20%	10V
C19	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C20	1-163-986-00	CERAMIC CHIP	0.027MF	10%	25V
C21	1-124-465-00	ELECT	0.47MF	20%	50V
C22	1-126-157-11	ELECT	10MF	20%	16V
C23	1-124-472-11	ELECT	470MF	20%	10V
C24	1-162-638-11	CERAMIC CHIP	1MF		16V
C25	1-163-077-00	CERAMIC CHIP	0.1MF	10%	25V
C26	1-124-472-11	ELECT	470MF	20%	10V
C27	1-164-005-11	CERAMIC CHIP	0.47MF		25V
C28	1-163-088-00	CERAMIC CHIP	5PF	0.25PF	50V
C29	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C30	1-124-442-00	ELECT	330MF	20%	6.3V
C31	1-162-638-11	CERAMIC CHIP	1MF		16V
C32	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C33	1-124-471-00	ELECT	1000MF	20%	6.3V
C36	1-163-086-00	CERAMIC CHIP	3PF	0.25PF	50V
C37	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C38	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C39	1-162-294-31	CERAMIC	0.001MF	10%	50V
C40	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C41	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C42	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C43	1-162-637-11	CERAMIC CHIP	0.47MF		16V
C45	1-162-638-11	CERAMIC CHIP	1MF		16V
C46	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C47	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C48	1-163-125-00	CERAMIC CHIP	220PF	5%	50V

Ref.No	Part No.	Description			
C49	1-164-006-11	CERAMIC CHIP	0.33MF	10%	16V
C50	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C51	1-163-096-00	CERAMIC CHIP	13PF	5%	50V
C52	1-163-107-00	CERAMIC CHIP	39PF	5%	50V
C53	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C54	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C55	1-163-193-00	CERAMIC CHIP	330PF	10%	50V
C56	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C57	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C58	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C59	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C60	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C61	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C62	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C63	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C64	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C65	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C66	1-126-162-11	ELECT	3.3MF	20%	50V
C68	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V
C69	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C81	1-162-215-31	CERAMIC	47PF	5%	50V
C82	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C83	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C85	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C86	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C87	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C88	1-124-465-00	ELECT	0.47MF	20%	50V
C89	1-164-005-11	CERAMIC CHIP	0.47MF		25V
CF1	1-577-547-11	FILTER, CERAMIC (450KHz)			
CF2 CF3 CF4	1-577-245-11	FILTER, CERAMIC (10.75MHz)			
CT1	1-141-304-21	TRIMAR, CERAMIC 10P			
CT2	1-141-304-21	TRIMAR, CERAMIC 10P			
D1	8-719-970-21	DIODE SVC342			
D2	8-713-220-00	DIODE 1T32-2			
D3	8-713-220-00	DIODE 1T32-2			
D5	8-719-911-19	DIODE 1SS119			
D6	8-719-911-19	DIODE 1SS119			
D7	8-719-110-31	DIODE RD12ES-B2			
D8	8-719-911-19	DIODE 1SS119			
D9	8-719-911-19	DIODE 1SS119			
D10	8-719-911-19	DIODE 1SS119			
D11	8-719-400-18	DIODE MA152WK			
D12	8-719-400-18	DIODE MA152WK			
D15	8-719-109-89	DIODE RD5.6ES-B2			
D21	8-719-800-76	DIODE 1SS226			
DCJ1	1-507-954-11	JACK, EXTERNAL POWER (DC IN 4.5V)			
EPJ1	1-563-330-11	JACK (EARPHONE)			
IC1	8-759-146-38	IC UPD1715G-583-24			
IC2	8-752-035-29	IC CXA1019S			
IC3	8-759-982-73	IC BA10393			

Ref.No	Part No.	Description
IC4	8-759-937-61	IC S-81230AG
IC5	8-759-945-21	IC S-8052ANB-NE-S
L1	1-402-452-11	ANTENNA, FERRITE-ROD (MW)
L2	*1-428-041-11	COIL, AIR-CORE
L3	1-460-004-11	COIL (WITH CORE)
L4	1-406-368-11	COIL (OSC)
L5	1-410-324-11	INDUCTOR 4.7UH
L7	1-410-316-11	INDUCTOR 1UH
LCD1	1-808-768-11	DISPLAY PANEL, LIQUID CRYSTAL
Q1	8-729-921-29	TRANSISTOR 2SC1809SN
Q2	8-729-903-30	TRANSISTOR DTC144TK
Q3	8-729-903-30	TRANSISTOR DTC144TK
Q4	8-729-901-78	TRANSISTOR 2SC2412K-R
Q5	8-729-903-30	TRANSISTOR DTC144TK
Q6	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q7	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q8	8-729-904-78	TRANSISTOR 2SB1197K-R
Q9	8-729-103-16	TRANSISTOR 2SC1622A
Q10	8-729-103-16	TRANSISTOR 2SC1622A
Q11	8-729-830-33	TRANSISTOR 2SK303
Q12	8-729-900-51	TRANSISTOR DTA114TK
Q13	8-729-903-30	TRANSISTOR DTC144TK
Q14	8-729-903-30	TRANSISTOR DTC144TK
Q16	8-729-903-30	TRANSISTOR DTC144TK

RESISTOR

R1	1-216-035-00	METAL GLAZE	270	5%	1/10W
R2	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R3	1-249-401-11	CARBON	47	5%	1/4W
R4	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W
R5	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R6	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R7	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R8	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R9	1-216-133-00	METAL GLAZE	3.3M	5%	1/10W
R10	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R11	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R12	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R13	1-216-748-11	METAL GLAZE	39K	5%	1/10W
R14	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R15	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R16	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R17	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R18	1-216-001-00	METAL GLAZE	10	5%	1/10W
R19	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R20	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R21	1-216-113-00	METAL GLAZE	470K	5%	1/10W
R23	1-216-295-00	METAL GLAZE	0	5%	1/10W
R24	1-216-295-00	METAL GLAZE	0	5%	1/10W
R27	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R28	1-216-017-00	METAL GLAZE	47	5%	1/10W
R30	1-216-295-00	METAL GLAZE	0	5%	1/10W
R33	1-216-035-00	METAL GLAZE	270	5%	1/10W
R37	1-216-295-00	METAL GLAZE	0	5%	1/10W
R38	1-216-295-00	METAL GLAZE	0	5%	1/10W
R39	1-216-295-00	METAL GLAZE	0	5%	1/10W
R40	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R41	1-216-083-00	METAL GLAZE	27K	5%	1/10W
R42	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R43	1-216-041-00	METAL GLAZE	470	5%	1/10W
R44	1-216-044-00	METAL GLAZE	620	5%	1/10W
R45	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R46	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R47	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R48	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R49	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R50	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R51	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R52	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R53	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R54	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R55	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R56	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R57	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R58	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R59	1-216-113-00	METAL GLAZE	470K	5%	1/10W
R60	1-216-001-00	METAL GLAZE	10	5%	1/10W
R61	1-216-295-00	METAL GLAZE	0	5%	1/10W
R64	1-216-295-00	METAL GLAZE	0	5%	1/10W
R65	1-216-210-00	METAL GLAZE	3.3K	5%	1/8W
R66	1-216-295-00	METAL GLAZE	0	5%	1/10W
R68	1-216-295-00	METAL GLAZE	0	5%	1/10W
R80	1-216-295-00	METAL GLAZE	0	5%	1/10W
R81	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R82	1-216-295-00	METAL GLAZE	0	5%	1/10W
R83	1-216-250-00	METAL GLAZE	150K	5%	1/8W
R84	1-249-437-11	CARBON	47K	5%	1/4W
R86	1-216-295-00	METAL GLAZE	0	5%	1/10W
R87	1-216-295-00	METAL GLAZE	0	5%	1/10W
R88	1-216-295-00	METAL GLAZE	0	5%	1/10W
R89	1-216-295-00	METAL GLAZE	0	5%	1/10W
R90	1-216-296-00	METAL GLAZE	0	5%	1/8W

RV1	1-238-650-11	RES, VAR, CARBON 10K (VOLUME)
RV2	1-228-995-00	RES, ADJ, CARBON 20K
S1	1-571-760-11	SWITCH, KEY BOARD (1)
S2	1-571-760-11	SWITCH, KEY BOARD (2)
S3	1-571-760-11	SWITCH, KEY BOARD (3)
S4	1-571-760-11	SWITCH, KEY BOARD (4)
S5	1-571-760-11	SWITCH, KEY BOARD (5)
S6	1-571-760-11	SWITCH, KEY BOARD (−)
S7	1-571-760-11	SWITCH, KEY BOARD (+)
S8	1-571-760-11	SWITCH, KEY BOARD (ENTER)
S9	1-571-760-11	SWITCH, KEY BOARD (KEY PROTECT)
S10	1-571-760-11	SWITCH, KEY BOARD (OFF)
S11	1-571-760-11	SWITCH, KEY BOARD (AM)
S12	1-571-760-11	SWITCH, KEY BOARD (FM)
SP1	1-544-171-11	SPEAKER
T1	1-404-870-11	TRANSFORMER, IF (450KHz)
T2	1-449-777-11	TRANSFORMER, DC-DC CONVERTER
X1	1-577-556-11	VIBRATOR, CRYSTAL (75KHz)

ACCESSORIES & PACKING MATERIALS
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1-504-116-11	EARPHONE
3-750-614-11	(AEP, UK)....MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH)
3-750-614-41	(AEP)....MANUAL, INSTRUCTION (GERMAN, DUTCH, PORTUGUESE)
3-750-614-61	(IT)....MANUAL, INSTRUCTION (ITALIAN)
3-898-361-01	SHEET, PROTECTION
*3-902-246-01	CUSHION
*3-902-248-01	INDIVIDUAL CARTON

9-953-982-11

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